ELSEVIER

Volume 80, Numbers 1–3, 1 December 2000

Chemical Engineering Journal

www.elsevier.com/locate/cej

Special Issue

UEF CONFERENCE ON SOLID-LIQUID SEPARATION SYSTEMS

CONTENTS

Foreword 1

Bridging flocculation studied by light scattering and settling
S.M. Glover, Y.-d. Yan, G.J. Jameson and S. Biggs 3

Aggregate structures formed via a bridging flocculation mechanism
S. Biggs, M. Habgood, G.J. Jameson and Y.-d. Yan 13

The structure and strength of depletion force induced particle aggregates
Y.-d. Yan, J.L. Burns, G.J. Jameson and S. Biggs 23

Cationic microparticle based flocculation and retention systems
Z. Yan and Y. Deng 31

Estimate of sludge floc permeability
R.M. Wu, G.W. Tsou and D.J. Lee 37

Enhanced flocculation of colloidal dispersions by polymer mixtures
F. Csempesz 43

New equipment for detection of polymer induced flocculation of cellulosic fibres by using image analysis — application to microparticle systems
L. Wågberg and J. Eriksson 51

Optimization of slurry flocculation and dewatering based on electrokinetic and rheological phenomena
S.K. Dentel, M.M. Abu-Orf and C.A. Walker 65

A new method for the reconstruction of the particle radius distribution function from the sedimentation curve
K.V. Parchevsky 73

Stochastic sedimentation and hydrodynamic diffusion
E.M. Tory 81

Numerical methods for the simulation of the settling of flocculated suspensions
R. Bürger, S. Evje, K.H. Karlsen and K.-A. Lie 91

Applications of the phenomenological theory to several published experimental cases of sedimentation processes
R. Bürger, F. Concha and F.M. Tiller 105

On boundary conditions and solutions for ideal clarifier–thickener units
S. Diehl 119

Discrete sedimentation model for ideal suspensions
J. Quispe, F. Concha and P.G. Toledo 135

Consolidation and aggregate densification during gravity thickening
J.B. Farrow, R.R.M. Johnston, K. Simic and J.D. Swift 141

Recent developments in techniques and methodologies for improving thickener performance
J.B. Farrow, P.D. Fawell, R.R.M. Johnston, T.B. Nguyen, M. Rudman, K. Simic and J.D. Swift 149

Semi-batch test of sedimentation. Application to design
R. Font and M.L. Laveda 157

Hydrodynamic parameters from the Michaels and Bolger method
R. Font and M. Pérez 167

Phenomenological foundation and mathematical theory of sedimentation–consolidation processes
R. Bürger 177

Filtration by falling particles
J.L. Chandler 189

Suspension concentration profiles during rapid gravity filter backwashing
D. Hall and C.S.B. Fitzpatrick 197

The uses of non-steady-state membrane characterisation techniques for the study of transport properties of active layers of nanofiltration membranes: theory with experimental examples
A.E. Yaroshchuk and V. Ribitsch 203

Use of material coordinates in porous media solute and water flow
D.E. Smiles 215

Pore structure and network analysis of filter cake
C.L. Lin and J.D. Miller 221

Cake filtration theory and practice
E. Mayer 233

Crossflow filtration testing of INEEL radioactive and non-radioactive waste slurries
N.R. Mann and T.A. Todd 237

Dynamic cross flow filtration
R. Bott, Th. Langeloh and E. Ehrfeld 245

A critical analysis of the fish hook effect in hydrocyclone classifiers
K. Nageswararao 251

Axial symmetric flow model for a flat bottom hydrocyclone
J. Collantes, F. Concha and B. Chiné 257

Flow patterns in conical and cylindrical hydrocyclones
B. Chiné and F. Concha 267

The hydrodynamics of a hydrocyclone based on a three-dimensional multi-continuum model
A.F. Nowakowski, W. Kraipech, R.A. Williams and T. Dyakowski 275

Sub-micron particle dewatering using hydrocyclones
S. Pasquier and J.J. Cilliers 283

Experimental hydrocyclone roping models
K. Heiskanen 289

Evaluation of hydrocyclone models for practical applications
Wu Chen, N. Zydek and F. Parma 295

Author Index 305
Subject Index 307